

**REMARKS**

In the foregoing amendment, Claims 2-4, 6, 9, and 13-15 are canceled, Claims 1, 5, 7, 10-12, and 16 are amended, and new Claims 17 and 18 are added. Now, Claims 1, 5, 7, 8, 10-12, and 16-18 are pending in the application, of which Claims 1, 5, 10, 12, and 16 are independent. The following comments address all stated grounds for rejection and place the presently pending claims, as identified above, in condition for allowance.

**Claim Rejections under 35 U.S.C. §112**

Claims 10-12, 13, and 14 stand rejected under 35 U.S.C. §112. For ease of the discussion below, the rejection of each respective claim set under 35 U.S.C. §112 are discussed separately.

**I (a). Rejection of Claims 13 and 14 under 35 U.S.C. §112:**

In the Office Action Claims 13 and 14 are rejected under 35 U.S.C. §112, second paragraph, for allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention. Applicants respectfully traverse this rejection in view of the above amendments. Applicants respectfully consider the rejection of Claims 13 and 14 under 35 U.S.C. §112, second paragraph, moot in view of the cancellation, of these Claims, without prejudice. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claims 13 and 14 under 35 U.S.C. §112.

**I (b). Rejection of Claims 10-12 under 35 U.S.C. §112:**

In the Office Action Claims 10-12 are rejected under 35 U.S.C. §112, second paragraph, for allegedly being incomplete for omitting structural cooperative relationships of elements. Applicants respectfully traverse this rejection in view of the above amendments. Applicants amend Claims 10-12 to clarify the recited angled input or angled output feature in these claims. Specifically, Applicants amend Claims 10-12 to clarify that the angle of the recited input feature and the angle of the recited output feature is an angle of which is non-perpendicular with respect to the direction of optical propagation in each claimed optical circuit. Accordingly, Applicants

respectfully request the Examiner to reconsider and withdraw the rejection of Claims 10-12 under 35 U.S.C. §112.

**Claim Rejections under 35 U.S.C. §101**

**II (a). Rejection of Claims 13 and 14 under 35 U.S.C. §101:**

In the Office Action Claims 13 and 14 are rejected under 35 U.S.C. §101, for allegedly reciting a use without setting forth any steps involved in the process. Applicants respectfully traverse this rejection in view of the above amendments. Applicants respectfully consider the rejection of Claims 13 and 14 under 35 U.S.C. §101 moot in view of the cancellation of these Claims, without prejudice. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claims 13 and 14 under 35 U.S.C. §101.

**Claim Rejections under 35 U.S.C. §102**

Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14 stand rejected under 35 U.S.C. §102. For the ease of the discussion below, the rejection of each respective claim set under 35 U.S.C. §112 are discussed separately.

**III (a). Rejection of Claims 1, 3, and 4 under 35 U.S.C. §102(b):**

Claims 1, 3, and 4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,111,998 of Ido *et al.* (hereinafter “Ido”). Applicants respectfully traverse this rejection in view of the above amendments and the following comments.

Claim 1 is amended to include the subject matter of Claim 2. In the Office Action, the Examiner does not reject Claim 2 in view of the Ido reference. That is, the Ito reference, alone or in any combination with the cited references, does not detract from the patentability of the subject matter recited in Claim 2. Accordingly, Claim 2, as originally filed, recites subject matter that is not disclosed, taught, or suggested by the Ido reference. Accordingly, amended Claim 1, which recites the subject matter of original Claim 2, is patentable over the Ido reference for at least this reason.

Applicants respectfully traverse the rejection of Claims 3 and 4 as being anticipated by the Ido reference in view of the cancellation of Claims 3 and 4 above. Hence, Applicants consider the rejection of Claims 3 and 4 moot under 35 U.S.C. §102(b).

Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claims 1, 3, and 4 under 35 U.S.C. §102(b)

III (b). Rejection of Claim 9 under 35 U.S.C. §102(b):

Claim 9 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Ido. Applicants respectfully traverse this rejection in view of the above amendments and the following comments. Claim 9 is cancelled without prejudice by this amendment. Accordingly, Applicants consider the rejection of Claim 9 moot. Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claim 9 under 35 U.S.C. § 102(b).

III(c). Rejection of Claims 13 and 14 under 35 U.S.C. §102(b):

Claims 13 and 14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Ido. Applicants respectfully traverse this rejection in view of the above amendments and the following comments. Claims 13 and 14 are cancelled without prejudice by this amendment. Accordingly, Applicants consider the rejection of Claims 13 and 14 moot. Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claims 13 and 14 under 35 U.S.C. § 102(b).

III (d). Rejection of Claims 1 and 2 under 35 U.S.C. §102(e):

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. US2003/0021514 of Ito *et al.* (hereinafter “Ito”). Applicants respectfully traverse this rejection in view of the following comments.

Applicants instant application is accorded a filing date of February 12, 2002, by the U.S. Patent and Trademark Office. By contrast, the Ito reference has a U.S. Patent and Trademark Office filing date of July 29, 2002, which is more than five months after the filing of Applicants instant application. Moreover, under 35 U.S.C. §102(e), the effective 102(e) date of the Ito reference is July 29, 2002. *See*, MPEP §706.02(f) (1). Accordingly, Applicants assert the Ito

reference fails to qualify as "Prior Art" under 35 U.S.C. §102(e) and, hence, the Ito reference does not anticipate Claims 1 and 2. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claims 1 and 2 under 35 U.S.C. § 102(e).

III (e). Rejection of Claims 5 and 6 under 35 U.S.C. §102(e):

Claims 5 and 6 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Ito. Applicants respectfully traverse this rejection in view of the following comments.

Applicants note that Claim 6 is cancelled without prejudice by this amendment.

Applicants instant application is accorded a filing date of February 12, 2002, by the U.S. Patent and Trademark Office. By contrast, the Ito reference has a U.S. Patent and Trademark Office filing date of July 29, 2002, which is more than five months after the filing of Applicants instant application. Moreover, under 35 U.S.C. §102(e), the effective 102(e) date of the Ito reference is July 29, 2002. *See*, MPEP §706.02(f) (1). Accordingly, Applicants assert the Ito reference fails to qualify as "Prior Art" under 35 U.S.C. §102(e) and, hence, the Ito reference does not anticipate Claim 5. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claims 5 and 6 under 35 U.S.C. § 102(e).

III (f). Rejection of Claims 7 and 8 under 35 U.S.C. §102(e):

Claims 7 and 8 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Ito. Applicants respectfully traverse this rejection in view of the following comments.

Applicants instant application is accorded a filing date of February 12, 2002, by the U.S. Patent and Trademark Office. By contrast, the Ito reference has a U.S. Patent and Trademark Office filing date of July 29, 2002, which is more than five months after the filing of Applicants instant application. Moreover, under 35 U.S.C. §102(e), the effective 102(e) date of the Ito reference is July 29, 2002. *See*, MPEP §706.02(f) (1). Accordingly, Applicants assert the Ito reference fails to qualify as "Prior Art" under 35 U.S.C. §102(e) and, hence, the Ito reference does not anticipate Claims 7 and 8. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claims 7 and 8 under 35 U.S.C. § 102(e).

III (g). Rejection of Claims 10 and 11 under 35 U.S.C. §102(e):

Claims 10 and 11 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Ito. Applicants respectfully traverse this rejection in view of the following comments.

Applicants instant application is accorded a filing date of February 12, 2002, by the U.S. Patent and Trademark Office. By contrast, the Ito reference has a U.S. Patent and Trademark Office filing date of July 29, 2002, which is more than five months after the filing of Applicants instant application. Moreover, under 35 U.S.C. §102(e), the effective 102(e) date of the Ito reference is July 29, 2002. *See*, MPEP §706.02(f) (1). Accordingly, Applicants assert the Ito reference fails to qualify as “Prior Art” under 35 U.S.C. §102(e) and, hence, the Ito reference does not anticipate Claims 10 and 11. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claims 10 and 11 under 35 U.S.C. § 102(e).

III (h). Rejection of Claim 12 under 35 U.S.C. §102(e):

Claim 12 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Ito. Applicants respectfully traverse this rejection in view of the following comments.

Applicants instant application is accorded a filing date of February 12, 2002, by the U.S. Patent and Trademark Office. By contrast, the Ito reference has a U.S. Patent and Trademark Office filing date of July 29, 2002, which is more than five months after the filing of Applicants instant application. Moreover, under 35 U.S.C. §102(e), the effective 102(e) date of the Ito reference is July 29, 2002. *See*, MPEP §706.02(f) (1). Accordingly, Applicants assert the Ito reference fails to qualify as “Prior Art” under 35 U.S.C. §102(e) and, hence, the Ito reference does not anticipate Claim 12. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claim 12 under 35 U.S.C. § 102(e).

III (i). Rejection of Claim 12 under 35 U.S.C. §102(e):

Claim 12 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Ito. Applicants respectfully traverse this rejection in view of the following comments.

Applicants instant application is accorded a filing date of February 12, 2002, by the U.S. Patent and Trademark Office. By contrast, the Ito reference has a U.S. Patent and Trademark

Office filing date of July 29, 2002, which is more than five months after the filing of Applicants instant application. Moreover, under 35 U.S.C. §102(e), the effective 102(e) date of the Ito reference is July 29, 2002. *See*, MPEP §706.02(f) (1). Accordingly, Applicants assert the Ito reference fails to qualify as “Prior Art” under 35 U.S.C. §102(e) and, hence, the Ito reference does not anticipate Claim 12. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claim 12 under 35 U.S.C. § 102(e).

III (j). Rejection of Claim 15 under 35 U.S.C. §102(e):

Claim 15 stands rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,148,132 of Hamamoto (hereinafter “Hamamoto”). Applicants respectfully traverse this rejection in view of the above amendments. Claim 15 is cancelled without prejudice by this amendment. Accordingly, Applicants consider the rejection of Claim 15 moot and respectfully request the Examiner to reconsider and withdraw the rejection of Claim 15 under 35 U.S.C. § 102(e).

III (k). Rejection of Claim 16 under 35 U.S.C. §102(e):

Claim 16 stands rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,571,038 of Joyner *et al.* (hereinafter “Joyner”). Applicants respectfully traverse this rejection in view of the above amendments and the following arguments.

Joyner describes a multimode interference coupler (MMI) with a tunable power splitting ratio. In particular, Joyner describes an electrode on an MMI structure. The purpose of the electrode is to change the split ratio of the MMI structure. Accordingly, the electrode is shaped to selectively target various imaging points in the MMI. The Joyner reference fails to disclose an optical attenuator having a single input and single output imaging multimode interference device.

In contrast, amended Claim 16 recites an optical attenuator having an imaging multimode interference device with a *single input* and a *single output*. The MMI structures disclosed by the Joyner reference include either two inputs and two outputs, or optionally a single input and two outputs. Nowhere does Joyner disclose an optical attenuator having an imaging multimode interference device with a *single input* and a *single output*. *See*, Joyner Column 6, lines 16-18. Hence, Joyner does not anticipate amended Claim 16.

Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claim 16 under 35 U.S.C. § 102(e).

**New Claims 17 and 18**

New Claim 17 depends from Claim 1 and is therefore patentable for at least the same reasons set forth above regarding the rejection of Claim 1.

New Claim 18 depends from Claim 5 and is therefore patentable for at least the same reasons set forth above regarding the rejection of Claim 5.

**CONCLUSION**

In light of the aforementioned amendments and arguments, Applicants contend that each of the Examiners rejections has been adequately addressed and the pending application is in condition for allowance. Should the Examiner feel that a telephone conference with Applicants' attorney would expedite prosecution of this application, the Examiner is urged to contact the Applicants' attorney at (617) 227-7400.

Respectfully submitted,

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